WHAT IS CLAIMED IS:

1. A laser treatment apparatus including:

a laser light source, and

a light guiding optical system, having an optical axis, for guiding a treatment laser beam emitted from the laser light source to a treatment part,

wherein the light guiding optical system includes:

an optical fiber through which the treatment beam emitted from the laser light source is guided;

a variable magnification optical system which changes a magnification of an image of an exit end face of the optical fiber to be formed on the treatment part in order to change a size of an irradiation spot of the treatment beam on the treatment part; and

a beam-attenuating member having a transmittance property that a transmittance is lower in a center portion than in a peripheral portion, the beam-attenuating member being placed in a position on the optical axis where an on-axis luminous flux and an off-axis luminous flux of the treatment beam emerging from the exit end face of the optical fiber pass through the beam-attenuating member at different ratios.

2. The laser treatment apparatus according to claim 1, wherein the transmittance property and the position of the beam-attenuating member are determined so as to attenuate the on-axis luminous flux while not attenuating an outermost off-axis luminous flux when the irradiation spot size is set at a maximum by the variable optical system and so as to attenuate both the on-axis luminous flux and the outermost off-axis luminous flux at substantially the same ratio when the irradiation spot size is set at a minimum by the variable optical system.

3. The laser treatment apparatus according to claim 2, wherein the variable magnification optical system changes the irradiation spot size in a range of at least 50 μm to 500 μm in diameter.

4. The laser treatment apparatus according to claim 1, wherein the variable magnification optical system changes the irradiation spot size in a range of at least 50 μm to 500 μm in diameter.

5. The laser treatment apparatus according to claim 1, wherein the transmittance property and the position of the beam-attenuating member are determined so as to change a beam-attenuating ratio between the on-axis luminous flux and the off-axis luminous flux in association with a change in the irradiation spot size by the variable magnification optical system.

6. The laser treatment apparatus according to claim 1, wherein the beam-attenuating member includes a shielding part for blocking the treatment beam, the shielding part is provided centrally on the beam-attenuating member and on the optical axis.

7. The laser treatment apparatus according to claim 6, wherein the shielding part is adapted to have a size so that a part of the on-axis luminous flux is blocked.

8. The laser treatment apparatus according to claim 7, wherein the shielding part is adapted to have a size so that a beam-attenuating ratio of the on-axis luminous flux at the position of the shielding part corresponds

to an intensity ratio between the center portion and the peripheral portion of the irradiation spot.

9. The laser treatment apparatus according to claim 6, wherein the shielding part is provided in the position on the optical axis where the on-axis luminous flux and the off-axis luminous flux do not coincide in a vertical plane to the optical axis.

10. The laser treatment apparatus according to claim 1 including an ophthalmic laser treatment apparatus for performing at least one of a retinal photocoagulation treatment and an iris incision treatment.